UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/439,225	11/12/1999	CARLOS SALDANHA	1162.007US1	1407

21186   7590   06/17/2009
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ART UNIT	PAPER NUMBER
2628	

NOTIFICATION DATE	DELIVERY MODE
06/17/2009	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte CARLOS SALDANHA, ANDREA M. FRONCIONI, PAUL A.
KRUSZEWSKI, GREGORY J. SAUMIER-FINCH, CAROLINE M.
TRUDEAU, FADI G. BACHAALANI, NADER MORCOS, SYLVAIN B.
COTE, PATRICK R. GUEVIN, JEAN-FRANCOIS ST-ARNAUD, SERGE
VEILLET, and LOUIS L. GUAY

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Appeal 2008-002844
Application 09/439,225[1]
Technology Center 2600

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Decided[2]: June 15, 2009

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Before SCOTT R. BOALICK, JOHN A. JEFFERY, and
CARLA M. KRIVAK, *Administrative Patent Judges.*

BOALICK, *Administrative Patent Judge.*

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[1] Application filed November 12, 1999. The real party in interest is Public
Technologies Multimedia, Inc.
[2] The two-month time period for filing an appeal or commencing a civil
action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date
shown on this page of the decision. The time period does not run from the
Mail Date (paper delivery) or Notification Date (electronic delivery).

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1-45, all the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

STATEMENT OF THE CASE

Appellants' invention relates to a computer-simulated environment for displaying a mannequin wearing a garment or garments. (Abstract; Spec. 2:6-7.)

Claims 1 and 16 are exemplary:

1.   A method for producing an image of a computer-simulated mannequin wearing a garment as defined by selected mannequin and garment parameter values, comprising:

     generating objects corresponding to a representative mannequin and a garment placed in a simulation scene within a three-dimensional modeling environment;

     simulating draping and collision of the garment with the representative mannequin within the simulation scene to generate a three-dimensional rendering frame of the representative mannequin wearing the garment;

     constraining portions of the garment to reside within or outside of one or more shells defined around the representative mannequin in the rendering frame during the draping and collision simulation, wherein each shell is a three-dimensional construct designed to mimic the physical interaction of the garment with another garment; and,

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rendering a two-dimensional image of the garment from the rendering frame and layering the rendered garment image upon a two-dimensional image of a selected mannequin.

16.   A method for producing an image of a computer-simulated mannequin wearing a garment as defined by selected mannequin and garment parameter values, comprising:

generating objects corresponding to a first mannequin and a first garment placed in a simulation scene within a three-dimensional modeling environment;

simulating draping and collision of the first garment with the first mannequin within the simulation scene to generate a first three-dimensional rendering frame of the first mannequin wearing the first garment;

generating a second rendering frame containing a second mannequin and a second garment as defined by selected parameter values that specify different dimensions from the first mannequin and/or first garment by shape blending corresponding objects of the first rendering frame, wherein the shape blending is performed by linearly combining parameters of the first rendering frame and performing a partial draping and collision simulation; and,

rendering an image from the second rendering frame.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

| Sakaguchi | US 6,310,627 B1 | Oct. 30, 2001 |
| Weaver | US 2002/0021297 A1 | Feb. 21, 2002 |

Pascal Volino et al., *The Evolution of a 3D System for Simulating Deformable Clothes on Virtual Actors*, MIRALab 1998, ("Volino").

Claims 1-45 stand rejected under 35 U.S.C. § 103(a) as being obvious over Sakaguchi, Volino, and Weaver.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the Briefs and the Answer for their respective details. Except as noted in this decision, Appellants have not presented any substantive arguments directed separately to the patentability of the dependent claims. In the absence of a separate argument with respect to those claims, they stand or fall with the representative independent claim. *See* 37 C.F.R. § 41.37(c)(1)(vii). Only those arguments actually made by Appellants have been considered in this decision. Arguments that Appellants did not make in the Briefs have not been considered and are deemed to be waived. *See id.*

ISSUE

With respect to claims 1-15, 18-31, and 33-45, Appellants argue that the applied references do not teach or suggest the claimed limitation of constraining portions of a garment to reside within or outside of one or more shells defined around a mannequin in the rendering frame during a draping and collision simulation, where each shell is a three-dimensional construct designed to mimic the physical interaction of the garment with another garment. (App. Br. 18-20; Reply Br. 4-6.)

With respect to claims 16-18 and 32-33, Appellants argue that the applied references do not teach or suggest the claimed limitation of generating a second rendering frame by shape blending corresponding objects of a first rendering frame, where the shape blending is performed by

linearly combining parameters of the first rendering frame. (App. Br. 20; Reply Br. 7-9.)

Appellants' arguments present the following issue:

Have Appellants shown that the Examiner erred in rejecting claims 1-45 under 35 U.S.C. § 103(a)?

The resolution of this issue turns on the following subsidiary issues:

1. Have Appellants shown that the Examiner erred in finding that the applied references teach or suggest constraining portions of the garment to reside within or outside of one or more shells defined around the mannequin in the rendering frame during the draping and collision simulation, where each shell is a three-dimensional construct designed to mimic the physical interaction of the garment with another garment?

2. Have Appellants shown that the Examiner erred in finding that Sakaguchi and Volino teach or suggest generating a second rendering frame by shape blending corresponding objects of the first rendering frame, where the shape blending is performed by linearly combining parameters of the first rendering frame?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

1. Appellants' Specification states that, in one embodiment, "the invention includes the generation of a rendering frame containing a mannequin wearing a particular garment from a collision and draping simulation and the further addition of garment constraints

corresponding to particular predefined shells around the mannequin that mimic the way the garment behaves when worn with another particular garment." (Spec. 3:1-5; *see also* Spec. 8:26-29, 9:1-7, 15:1-14, 25-27.) "These garment constraints are defined so as to conform to various dressing conventions or rules relating to how clothes are worn, e.g., the wearing of a coat over a shirt." (Spec. 3:5-7.) Constraining the garment to reside within or outside of particular predefined shells approximates the physical interaction between multiple garments (Spec. 8:26-29), but "allows single garments to be independently simulated and rendered for later combination into a composite image" (Spec. 9:6-7).

2. Appellants' Specification states that, "[i]n one embodiment, the present invention includes . . . generating rendering frames containing mannequins and garments as defined by selected parameter values by shape blending the mannequins and/or garments of previously generated rendering frames." (Spec. 2:22-27; *see also* Spec. 6:28 to 7:13; 16:24-27; 19:8-10.) "Linear combinations of the parameter values of previously generated rendering frames (e.g., as produced by interpolating between such values) are thus used to generate rendering frames with the desired mannequin and garment." (Spec. 2:27-31; *see also* Spec. 6:28 to 7:13; 16:24-27; 19:8-10.) For example, "the dimensions of a mannequin may be changed by blending the shapes of previously simulated mannequins. . . . using a linear combination of parameter values (e.g., interpolation or extrapolation) generated from a previous simulation." (Spec. 7:6-11.)

3.   Sakaguchi describes a method and system for generating a
      stereoscopic image of a garment when it is put on a person. (Abstract;
      col. 1, ll. 5-9.) An operator can input information regarding the
      garment (col. 7, ll. 5-20) and command a stereoscopic image of the
      garment to be generated (col. 7, ll. 21-24) using image data "of the
      human model and image data of patterns corresponding to the inputted
      shape of the garment" (col. 7, ll. 24-28). Referring to Figure 4, "the
      images of the respective patterns D are deformed as to be put on a
      human model M." (Col. 7, ll. 31-32; *see also* col. 7, ll. 33-51, col. 21,
      ll. 1-63.)

4.   Sakaguchi describes a standard garment C suited to a standard figure
      model M and the preparation of a customized "special garment" C'
      suited to the size of a customized individual figure model M'.
      (Col. 21, ll. 3-63.) Sakaguchi teaches a first projection function T
      which represents the correspondence between the standard figure
      model M and the standard garment C (col. 21, ll. 12-16; Fig. 22), a
      second projection function F which represents the correspondence
      between the individual figure model M' and the standard figure model
      M (col. 21, ll. 44-55; Fig. 22), a projection function Z for projecting
      the image of the special garment C' onto patterns D' (col. 22, ll. 4-9;
      Fig. 22), and a projection function G for projecting the image of the
      standard garment C onto the image of the special garment C' (col. 22,
      ll. 9-13; Fig. 22). If the projection function G is known, Sakaguchi
      teaches that the image of the special garment C' may be obtained by
      generating the image of the standard garment C and deforming it

using the projection function G. (Col. 22, ll. 14-18.) On the other hand, if the projection function G is not known, Sakaguchi teaches that the image of the special garment C' can be obtained by applying the projection relationship F of the standard figure model M and the individual figure model M' to the image of the standard garment C. (Col. 22, ll. 28-43.) "Therefore, . . . the generation of the stereoscopic image of the special garment C' by the projection function G is equivalently accomplished by following a course of from the standard garment C, to the standard figure model M, to the individual figure model M' and to the special garment C'." (Col. 22, ll. 37-43.)

5. Volino describes a system for simulating deformable clothes on humans. (Abstract.) Volino teaches that "[a]nother innovation of our new software is the possibility of creating any kind of person to wear our clothes. This means that we may dress men, women, and children of various sizes." (Page 5.) Volino teaches that, "[i]n order to automatically generate human models with different sizes and proportions, five normalized parameters (Fig. 6) are used to scale the standard skeleton template to accommodate variations." (Page 11; *see also* page 17, section 4.3.2.) Volino's clothing is constructed by assembling 2D panels and the actor is dressed using these panels. (Page 14.) Volino describes animating the clothing by applying deformations to the dressed body. (Page 17.)

PRINCIPLES OF LAW

All timely filed evidence and properly presented arguments are considered by the Board in resolving an obviousness issue on appeal. *See In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

In the examination of a patent application, the Examiner bears the initial burden of showing a prima facie case of unpatentability. *Id.* at 1472. When that burden is met, the burden then shifts to the Applicant to rebut. *Id.*; *see also In re Harris*, 409 F.3d 1339, 1343-44 (Fed. Cir. 2005) (finding rebuttal evidence unpersuasive). If the Applicant produces rebuttal evidence of adequate weight, the prima facie case of unpatentability is dissipated. *In re Piasecki*, 745 F.2d at 1472. Thereafter, patentability is determined in view of the entire record. *Id.* However, on appeal to the Board it is the Appellant's burden to establish that the Examiner did not sustain the necessary burden and to show that the Examiner erred. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [for obviousness] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). In *KSR*, the Supreme Court reaffirmed that "[t]he combination of

familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 416.

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Kahn*, 441 F.3d at 988. "To facilitate review, this analysis should be made explicit." *KSR*, 550 U.S. at 418. However, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.*

During examination of a patent application, a claim is given its broadest reasonable construction consistent with the specification. *In re Prater*, 415 F.2d 1393, 1404-05 (CCPA 1969). "[T]he words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal citations omitted). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1313.

ANALYSIS

Claims 1-15, 18-31, and 33-45

Appellants' arguments that the Examiner erred in rejecting claims 1-15, 18-31, and 33-45 as being obvious over Sakaguchi, Volino, and Weaver are persuasive. We agree with Appellants that none of the applied references, alone or in combination, teach or suggest the limitation of

constraining portions of the garment to reside within or outside of one or more shells defined around the mannequin, where each shell is a three-dimensional construct designed to mimic the physical interaction of the garment with another garment, as claimed.

The Examiner broadly interpreted the claims and found (Ans. 4-8, 22) that the claimed shells were taught by pattern D' surrounding the human model M', as shown in Figure 4 of Sakaguchi. The Examiner also found (Ans. 8-10, 23-26) that Volino teaches the claimed shells by teaching a multilayer cloth in a geometrical surface region hierarchy. The Examiner further found that the skin surfaces of Sakaguchi could be shells. (Ans. 36.) However, the Examiner's interpretation is contrary to the plain language of the claim and is not consistent with the Specification.

The disputed claim limitation requires that portions of the garment be constrained to reside within or outside of the shell and that the shell be defined around that mannequin. In other words, the shell cannot be either the mannequin or the garment. This interpretation is consistent with the description of the claimed "shells" provided in the Specification (FF 1).

Therefore, Appellants have shown that the Examiner erred in finding that the applied references teach or suggest constraining portions of the garment to reside within or outside of one or more shells defined around the representative mannequin in the rendering frame during the draping and collision simulation, where each shell is a three-dimensional construct designed to mimic the physical interaction of the garment with another garment. In addition, there is no evidence before us to show that this limitation is a predictable variation of the prior art. Nor is there evidence

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before us to show that this limitation would be common sense or a creative step that a person of ordinary skill in the art would employ.

Therefore, we conclude that Appellants have shown that the Examiner erred in rejecting claims 1-15, 18-31, and 33-45.

Claims 16, 17, and 32

Appellants' arguments that the Examiner erred in rejecting claims 16, 17, and 32 as being obvious over Sakaguchi, Volino, and Weaver are not persuasive.

As the Examiner correctly found (Ans. 13-16, 37-41), both Sakaguchi and Volino teach or suggest generating a second rendering frame by shape blending corresponding objects of the first rendering frame, where the shape blending is performed by linearly combining parameters of the first rendering frame. (FF 4-5.) For example, Figure 22 of Sakaguchi and Figure 6 of Volino teach or suggest generating a second mannequin and garment by shape blending, as claimed. (FF 4-5.) The shape blending taught by Sakaguchi and Volino (FF 3-5) involves generating a mannequin or garment having different dimensions from a previously generated mannequin or garment and is consistent with the shape blending recited in the claims and discussed in Appellants' Specification (FF 2).

Therefore, Appellants have not shown that the Examiner erred in finding that Sakaguchi and Volino teach or suggest "generating a second rendering frame . . . by shape blending corresponding objects of the first rendering frame, wherein the shape blending is performed by linearly combining parameters of the first rendering frame."

Accordingly, we conclude that Appellants have not shown that the Examiner erred in rejecting claims 16, 17, and 32 under 35 U.S.C. § 103(a).

CONCLUSION

Based on the findings of facts and analysis above, we conclude that:

(1) Appellants have shown that the Examiner erred in rejecting claims 1-15, 18-31, and 33-45 under 35 U.S.C. § 103.

(2) Appellants have not shown that the Examiner erred in rejecting claims 16, 17, and 32 under 35 U.S.C. § 103.

DECISION

The rejection of claims 1-15, 18-31, and 33-45 under 35 U.S.C. § 103 is reversed.

The rejection of claims 16, 17, and 32 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

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